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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/737,418

Filing Date: December 14, 2000

Appellant(s): HUSTON ET AL.

Paul N. Katz
For Appellant

MAILED
NOV 17 2004
Technology Center 2600

EXAMINER'S ANSWER

This is in response to the appeal brief filed August 18, 2004.

(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

The rejection of claims 1-10, 12-21, and 23-25 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) *ClaimsAppealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

US 5,977,940 Akiyama et al 11-1999

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-7, 12-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama et al (US 5,977,940).

As to independent claims 1 and 12, Akiyama et al disclose a display device and a method for driving a display comprising; storing a voltage value in an analog memory associated with each pixel of a display, each of the pixels having a first and a second optical state; Although Akiyama et al do not state where each of the pixels have a first and second optical state, it would have been obvious to one of ordinary skill in the art that all pixels have a first and second optical state such as “on” or “white” and “off” or “black” states.

wherein each of the pixels has a comparator associated therewith (col. 9, lines 37-46, 60-67); comparing a reference voltage having values that change in time to the voltage values stored in each of the analog memories associated with each of the pixels (col. 10, lines 1-22, 36-65); changing the optical state of each of the pixels when the respective voltage values match the

reference voltage (col. 10, lines 1-22, 36-65). Akiyama et al disclose in col. 10, lines 1-22, 36-65, and in Figs. 2a-e the comparison of the reference voltage, which changes in time, with those of the voltage values stored in the memory. It would have been obvious to one of ordinary skill in the art where the optical state of each of the pixels would be changed depending upon the voltage values in the memories as is required for driving a display. This is clearly shown by Akiyama et al in Figs. 2a-e and in col. 10, lines 1-22 and 36-65.

As to dependent claims 2 and 13, limitations of claims 1 and 12, and further comprising, wherein the display is an active matrix panel display (col. 9, lines 28-37).

As to dependent claims 3 and 14, limitations of claims 1 and 12, and further comprising, the step of applying illumination while the reference voltage changes values in time (col. 9, lines 28-37, col. 10, lines 1-22, 36-65).

As to dependent claims 4 and 15, limitations of claim 3 and 14, and further comprising, wherein the reference voltage is changed as a function of time for causing each pixel to change optical state at a desired time (col. 13, lines 14-41).

As to dependent claims 5 and 16, limitations of claim 1 and 12, and further comprising, wherein the optical states of groups of the pixels are changed, and further comprising the step of changing the states of the groups of the pixels in multiple phased cycles (col. 13, line 14-col. 14, line 23).

As to dependent claims 6 and 17, limitations of claim 5 and 16, and further comprising, wherein the groups are interspersed on the display to avoid flicker at low update rates (col. 13, line 14-col. 14, line 23).

As to dependent claims 7 and 18, limitations of claims 1 and 12, and further comprising, wherein the pixel provides illumination (col. 9, lines 28-37).

3. Claims 8-10 and 19-21 rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama et al in view of Huang et al (US 5,965,907).

As to dependent claims 8 and 19, limitations of claims 7 and 18, and further comprising, wherein the display is an organic light emitting diode display (OLED). Akiyama et al does not disclose where the display is an organic light emitting diode display. Huang et al disclose a OLED device within a liquid crystal display as shown in the abstract. It would have been obvious to one of ordinary skill in the art to incorporate the OLED device of Huang et al into that of Akiyama as the addition of the OLEDs for use as LCD illumination device allows for field sequential color and is a more reliable light source as shown in col. 2, lines 9-41.

As to dependent claim 9 and 20, limitations of claims 8 and 19, see limitations of claims 5 and 16.

As to dependent claims 10 and 21, limitations of claim 9 and 20, see limitations of claims 6 and 17.

4. Claims 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiyama et al (US 5,977,940) further in view of Nakao (US 6,437,716).

As to independent claim 23, limitations of claims 1 and 12, and further comprising, wherein each of the pixels includes a level shifter for changing a lower voltage to a higher voltage for output to a pixel electrode. Akiyama et al do not disclose a level shifter. Nakao disclose a level shifter in col. 2, line 64-col. 3, line 12. It would have been obvious to one of ordinary skill in the art to incorporate the level shifter of Nakao into that of Akiyama et al as the

level shifter converts the data into an analog voltage, which is then outputted as the gray scale display voltage from an LCD drive voltage output terminal to the source signal lines of the LCD elements by an output circuit. Thus, with the incorporation of the level shifter, the number of levels of the reference voltages becomes the number of levels of gray that can be provided for display.

As to dependent claims 24 and 25, limitations of claims 1 and 12, and further comprising, wherein the voltage value in at least a portion of the analog memories is adjusted for providing gamma correction. Akiyama et al do not disclose wherein the voltage value in at least a portion of the analog memories is adjusted for providing gamma correction. Nakao discloses in col. 7, lines 31-53, wherein the gamma correction is provided. It would have been obvious to one of ordinary skill in the art to incorporate the gamma correction of Nakao into that of Akiyama et al as the gamma correction would provide a more natural gray scale display (col. 1, lines 12-20).

(11) Response to Argument

In response to applicant's arguments of where Akiyama et al do not teach or suggest using the time duration that a pixel is in a first optical state before switching to a second optical state to produce a desired gray scale for that pixel. Akiyama et al disclose in col. 10, lines 1-22, 36-65, and in Figs. 2a-e the comparison of the reference voltage, which changes in time, with those of the voltage values stored in the memory. Akiyama et al applies an analog voltage on the EO curve to a liquid crystal cell comprising a pixel of a display. Akiyama et al do not disclose where the switching is to produce a desired gray scale for that pixel. The feature of *producing a desired gray scale* is not claimed by the applicant in the limitations of the pending claims of the present invention.

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Applicant argues where the present invention has only two binary optical states, "on" and "off". Gray scale is accomplished in the present invention by having the pixels be in one of the optical states for a certain time duration before switching to the other optical state during an illumination phase of the video display. Again, examiner asserts that the applicant has not claimed producing gray scale in the limitations of the pending claims of the present invention.

With respect to the limitations set forth in the present invention, the claims are broadly defined, thus the prior art Akiyama et al can read upon and rejection the claimed invention. For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Srilakshmi K. Kumar
Examiner
Art Unit 2675

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November 14, 2004

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